

WHAT IS CLAIMED IS:

1. A laser scanning microscope system comprising:  
at least one laser source;

5 a microscope unit comprising at least a microscope  
main body, a stage on which a sample is laid, an  
objective lens which converges a light from a sample to  
form a parallel light, and a first image formation lens  
which converges the parallel light from the objective  
lens;

10 a scanning unit disposed attachably/detachably  
with respect to the microscope main body, the scanning  
unit comprising: a optical scanning device which scans  
a laser light from the laser source; a pupil projection  
lens and a second image formation lens arranged so that  
15 the optical scanning device and a pupil position of the  
objective lens are optically conjugated; and

at least one photodetector which detects light  
from the optical scanning device through a confocal  
pinhole, wherein

20 the scanning unit is attached to the microscope  
main body so that an optical axis of an optical path  
branched by a deflection part disposed between the  
objective lens and the first image formation lens is  
aligned with that of the optical path of the second  
25 image formation lens.

2. The laser scanning microscope system according  
to claim 1, wherein the optical scanning device, the

pupil projection lens, and the second image formation lens are linearly arranged along the optical path of the laser light of the laser source.

3. The laser scanning microscope system according to claim 1, wherein a mercury lamp illumination unit is attachably/detachably provided to the scanning unit, and the scanning unit comprises an optical path switching device for selectively switching an illumination light path of the mercury lamp and a laser light path of the laser source.

4. The laser scanning microscope system according to claim 3, wherein an additional unit is attachably/detachably provided to the scanning unit, and the optical path switching device can selectively switch the optical paths including an optical path with respect to the additional unit.

5. The laser scanning microscope system according to claim 1, wherein the additional unit is attachably/detachably provided to the scanning unit.

6. The laser scanning microscope system according to claim 5, wherein the additional unit is an external detector unit which detects light from the sample without descanning.

7. The laser scanning microscope system according to claim 5, wherein the additional unit is a laser illumination device for evanescent illumination.

8. The laser scanning microscope system according

to claim 5, wherein the additional unit is a second scanning unit.

9. The laser scanning microscope system according to claim 1, wherein the photodetector as well as  
5 a confocal pinhole through which the light from the sample passes constitute a detection unit, and the detection unit is disposed attachably/detachably with respect to the scanning unit.

10. The laser scanning microscope system according to claim 1, wherein the microscope unit further  
10 comprises an observation tube, the microscope main body is upright, the first image formation lens is disposed in the observation tube, and the scanning unit is disposed between the microscope main body and the  
15 observation tube.

11. The laser scanning microscope system according to claim 10, wherein the deflection part is disposed in the scanning unit.

12. The laser scanning microscope system according to claim 1, wherein the microscope main body is  
20 inverted, and the scanning unit is attached to the microscope main body instead of a reflected light illuminator which guides an epi-illumination light into the microscope main body.

25 13. A laser scanning microscope system comprising:  
an objective lens which converges a laser light from a laser source to form a light spot on a sample;

an optical scanning device which scans the light spot in a two-dimensional plane on the sample;

a pupil projection lens and an image formation lens arranged in a predetermined positional relation in an optical path of the laser light of the laser source so that the optical scanning device and a pupil position of the objective lens are brought into an optically conjugated arrangement, wherein

the pupil projection lens, the image formation lens, and the optical scanning device are disposed in one scanning unit, and

the optical scanning device, the pupil projection lens, and the image formation lens are linearly arranged along the optical path of the laser light of the laser source.

14. A scanning unit applied to a laser scanning microscope system comprising: an objective lens which converges laser light from a laser source to form a light spot on a sample; an optical scanning device which scans the light spot in a two-dimensional plane on the sample; and a pupil projection lens and an image formation lens arranged in a predetermined positional relation in an optical path of the laser light of the laser source so that the optical scanning device and a pupil position of the objective lens are brought into an optically conjugated arrangement, the scanning unit comprising:

the pupil projection lens;  
the image formation lens; and  
the optical scanning device.